

AVIATION

The Oldest American Aeronautical Magazine

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A flight of Navy torpedo planes flying in step formation at San Diego, Calif.

VOLUME
XXIII

Special Features

The Mohawk "Pinto"
Fog and Night Flying
A "Flying Schoolhouse"

NUMBER
21

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Some Notable Lorraine-Dietrich Performances 1925

34,000 miles in 300 hours of flight — Rome-Melbourne-Tokyo-Rome, achieved by Colonel De Pineda in a S. A. V. G. L. A. flying boat with 450 H. P. engines.

New York-Buenos Aires, by Duggan, Olivero and Camporelli, in a S. A. V. G. L. A. flying boat, with a 450 H. P. engine.

1926
3,500 miles in 3 days, by Arrachart and Carol.

(Circuit des Capitals), in a Potez XXV, with 450 H. P. engines.

6,500 miles in 6 days, 15 hours, Paris-Peking by Follmer-Delley and Carol in a Breguet with 450 H. P. engines.

6,500 miles in 9 days, (9 stops) Tokio-Copenhagen by Captain Floved flying a Fokker with 450 H. P. engines.

4,000 miles in 41 hours 45 minutes, total time, Paris-Rome-Tunis-Casablanca-Paris by Follmer-Delley and Gossin in a Potez 25 with 450 H. P. engines.

1927

18,000 miles in flying boat across Africa by Capitaine de cavalerie Guillaumet and mechanic Rapin.

Crossing South Atlantic, from Balerna to San Fernando de Nonheva, 1600 miles in a non-stop night flight of 17 hours, 30 minutes by Major Samadino de Reives.

SOCIÉTÉ LORRAINE-DIETRICH
ARGENTEUIL (Seine-et-Oise) FRANCE

THE NATIONAL GUARD UP-TO-DATE



The Curtiss O-11 "Falcon"

Time was when the National Guard was considered more or less as a "home-town outfit." Not particularly well equipped, — chiefly of value, perhaps, in local emergencies, strikes, riots.

Then came the World War — and these same National Guard units, in spite of the handicaps of insufficient training and equipment, blossomed overnight into first-class fighting units — writing their history on the battle-fields of France in glorious fashion.

Today the National Guard, efficiently organized, well trained, properly equipped, is an extremely important part of our scheme of national defense. And like all up-to-date military organizations it has taken to the air.

Deliveries are now being made on a quantity order of Curtiss O-11 "Falcons", built for exclusive use of the National Guard. The "Falcon" is the machine which is being supplied in large quantities as the standard two-seater observation and attack plane of the U. S. Army Air Corps.

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Vol. XXIII

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No. 21

Flying Collegians

ANNUAL MEETING HAS been made that Governor Lehman, president of the Levee Association, New York City, has set aside a prize fund of \$1000 to be used for an annual award for an aviator whose flying contest is held each year among aviators representing American colleges. The object of creating the fund is to encourage flying in the colleges of this country, and all contests and matches to be conducted according to rules and regulations set to be set down by the National Aeronautic Association.

No Levee is to be congratulated for this, his latest endeavor, and it will undoubtedly go far toward increasing "air-mindedness" on the campus. Right now the big airplanes of Oxford and Cambridge, in England, are passing over university flying fields, and it is not to be expected that this country should prove much less interested in the industry, not alone from the standpoint of pure pleasure but also from the standpoint of an increased number of qualified pilots.

The Unthinking Press

MUCH OF the present popularity of aviation is due to the power of the press, for had it not been for its daily publicity given the recent aerial exploits the world would not have been so concerned as to what the outcome of flying is all about. And so, the common world may be thankful for the part that newspapers have played in fostering the art, as research leading to existence before the attention of the mass at the moment.

But newspapers, with editors and other press officials, are not events from the standpoint of news alone, such as they are, but yet in so doing, they do damage to the business standing and intellectual party. Of course it is not personal against the press, it is against the news of airplanes crashes the 15 inflicting unwarranted injury. To crash at this stage of the art of flying, is no doubt about that, and it is not possible to look at the press as that point is absolutely no account of praising the manufacturer who built the crashed plane. The crash of the plane does not add one iota to the interest and its appearance in print can go down as a defeat for the manufacturer. The majority of airplane crashes are due to

the pilot's fault and not the carelessness of the plane. And in view of the fact that a manufacturer does not have charge of operation and maintenance of his products after they are sold, it is obviously unjust to give him damaging publicity as the result of a pilot's inability or carelessness.

Let the press print the news story of a crash in full and, if needs must, fill its columns with a vivid description of the effort, but omit the manufacturer's name for, in the overwhelming majority of cases, he is just as responsible for the crash as is the manufacturer of an automobile that fails to meet an express train to a grade crossing.

Bravo, Governor Trumbull!

FROM THE standpoint of aeronautics, the old adage "Practice What You Preach" has been aptly illustrated by Connecticut's chief executive Governor Trumbull who recently made his first solo flight and has since been granted Pilot's License No. 46. For some time Governor Trumbull has been an ardent aviation enthusiast and when he received sufficient instruction from Interstate Airways, Inc., to enable him to "take her off alone," he received a long-sought realization. Governor Trumbull is to be congratulated not only because he has joined the ranks of those who can ride the alone alone, but also because of the example that he has set to those who believe that the airplane belongs to youth alone. When a high state executive is sold on the airplane to the extent of becoming a pilot, his followers should at least be held enough to penetrate it as a means of travel.

Subscribers Please Note

OUR CIRCULATION manager has informed us that \$5 per cent of the subscriptions to AVIATION expire with the last issue in December, and in order that no subscriber will miss an issue as the result of not being aware of his expiration date, the publishers are hereby made to look at the wrapper of your next copy. If it bears the figure \$2.50 it means that your subscription expires December 31, 1927.

Past experience has proven that a number who renewed their subscriptions late were disappointed in obtaining back issues as they had been out of print. In order that such a condition may be avoided it is requested that, if you desire to renew your subscription to AVIATION, you send in your renewal order ahead of time.

Flying through Fog and Night

An Analysis of Problems that Confront the Air Mail Pilot

By EDMUND T. ALLEN



A U. S. mail plane clearing off the ground

"...not fog nor night can stop the pilot in his flight."

SO BUSY are matters of an air mail pilot in his flight, that he is not even aware of the danger that confronts him when he is flying through fog and night. This does not happen as often as the general public supposes. In good weather the thousands who go to see the night mail come in and depart, breathe a sigh of relief. A sign, however, not entirely free of anxiety, is the light of the landing field which is quickly swallowed up in darkness. But on cloudy nights when even in falling thick and fog is in the air, there are no spectators for these arrivals and departures, and one finds on speaking to the man of the wheel the next morning, that he is quite carefree when told that the air mail got through on time the night before. That small percentage of transcontinental flights which are not completed, or which the mail is transferred to the railroad and train for a part of the route, is practically all chargeable to our great enemy, fog. The goal of the air mail service is 240 per cent. delivery on time. To that end a constant analysis of the cause of defaults is needed.

For the year ending June 30, 1927, the Transcontinental Air Mail Service had an "efficiency" of 94.2 per cent. This includes the double day and night service between New York and Chicago and the single through 24 hr. service from Chicago to San Francisco. Of the 5.8 per cent. transcontinental flights uncompleted entirely by air, practically all were stopped en route by bad weather at night. Three-quarters of them were winter time delays. In the daylight, few really cause a serious delay of the schedule although at times it is the most heart-breaking for passengers.

One of the Crown Devoine pilots who flew between Omaha and North Platte last winter during a bad spell of weather had not been delayed as yet, although the worst fog

he had ever encountered was reported by some of the pilots on this diversion. On this particular day, flying at 30 ft. above the ground, the pilot could hardly see the terrain or make out the highway directly below him. The fog became thicker and he went down and flew along at 20 ft. from the ground, trying to pierce the fog in front of him for possible points, farm-houses, signs or trees. Then at it became thicker still, unable to make a turn without losing the ground, he pulled up, intending to climb through it and fly over the top and he came to a clear region. He climbed "blind" for 2000 ft. with eyes fixed to the horizon—no map and bank indicator, when suddenly he saw he was within 500 ft. of the ground.

The Ice Peril

ICE? What a word of terror to the pilot in almost any circumstances. Not caught between a "blind-in-fog" and a "blind-in-ice" situation, it was terrifying enough. To the layman ice conditions mean merely that reduce the speed in which at certain temperatures and sudden pressure collects and freezes on wings, struts, propellers, leading up quickly a mass of hundreds of pounds. To the pilot it means often an immediately reduced speed, practically out of control or at a speed which would not crash even on a smooth field where he can see where he is going. In fog, at night, or over rough country, it is a death sentence.

Unable to climb higher with the load of ice, the pilot started back down toward the ground, where he was in sight only for a few moments. It was a situation in which the use of his parachute might be called for. But he could not do so, for the airplane. Fortunately, as he descended, he realized and he was freed of his extra load, he let her drop and she was below the top of the fog for a moment.

By night such spots the 3500 ft. level, the sea would form again and current his climbing higher. He descended to 2800 ft. as revealed on his altimeter, and then began feeling for a moment 115 mph.

During the entire time he had been completely blind as far as everything except his instruments was concerned. His only altitude (1 level) were the rather vague sensations given him by his ears and backache (which, of course, register as a "cold" component, both the indication of a turn and the sensation of gravity) by his striped indicator, and a faint light of his engine, which made if the airplane were being and laboring if climbing steeply. The sphere of gyro, which he was the center, darkened below, indicating the horizon as it moved out far away (but just how far) and the sea surface—free legal. As he pulled back on the stick, he looked over and down wings extended through the fog. That was the lowest point of the arc of his flight path. Had it been another three feet lower—

Eventually Determined Location

As instant later he was upon the center of his gyro sphere with the problem of finding the ground still unsolved. Again a "cold" for the ground? Something dark went by one wing and he saw it, white than sea, a farm-house and windmill, one top was higher than he. A third wing down brought the gyro of a dark-line frame passing parallel to his line of sight and directly under one wingtip. This time he checked. A last he was considerably worried by his lack of accuracy which had been worse than this, and therefore what should have been a view which was more than 15 ft. high. He descended to cut the vertigo and head down about seven feet. The water was level, but each time he descended on the plane to do a new condition looked up.

In the frame of mind to be 30 ft. and was eventually reached by the fog becoming slightly less dense so that he could remove his, comparatively safe, 50 ft. "view-finding". He was quickly discovered that this was the horizon-line frame to which was of the course and it was an easy matter to shift over to the Plaza River and follow it to North Platte. It is a common saying among those who know little about

flying that a pilot will fly worse weather at night than in the daylight, because at night he cannot see how bad it is. Such a belief is absurd. We are not flying "blind" at present, except for very, very short stretches. Flying such as just described would have had a very different outcome had it been dark. One who has had such experience on daylight knows that at night they usually end in crashes.

Why are we not doing "blind flying"? Because, as the first phase, each of the five Transcontinental pilots killed during



A good comparison of the past and present method of mail transportation can be made from the above photo which shows "Old" Matucha, pilot of the U. S. mail, and modern plane shaking hands with Mr. Lee, an old "pilot" of the same earth days.

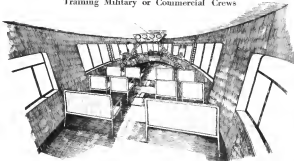
the past three years was killed at night while flying "blind". In the second place, the danger that he will be unable to "keep an even keel" along three perpendicular seas and keep on a course for an indefinite period, is ever present. The third reason is that a forced landing under such conditions is often fatal, and a "parachute-out", less than landing the airplane, is not always accomplished safely. One could go on enumerating many more reasons, but they are relatively unimportant when placed beside the very great danger that one will be unable to land if the horizontal surface is fog-bound.



A U. S. mail plane passing the "Hump" in the Sierra Nevada

A "Flying Schoolhouse"

Goodyear-Zeppelin Corp. Engineers Design Craft for Training Military or Commercial Crews



Drawing of the "flying schoolhouse" class room.

By WALTER E. BURTON

A FLYING SCHOOLHOUSE for the training of future airship crews has been designed by the engineering staff of the Goodyear-Zeppelin Corp., of Akron, O., as one of the steps in the preparation for the day when dirigibles will be one of the principal means of swift transportation of passengers and freight.

The proposed training ship will be suitable for the preparation of either military or commercial dirigible crews. It will be about a third the size of the Los Angeles, and can be filled with either helium or hydrogen gas. A double hull will be provided. The forward portion of this will be occupied by the ship's navigation, while the rear section will be the principal classroom, with desks for sixteen to eighteen students. Large overhead lights, visible from all parts of the classroom, will enable students to follow every movement in connection with the navigation of the ship, and the removal of the craft in various conditions.

The training dirigible, while comparatively inexpensive, will be large and fast enough to afford satisfactory experience identical with that obtained on a full-sized craft. It will have a maximum speed of about 50 m.p.h., and a cruising speed of 65 m.p.h. It is not intended for long distance flying, although it is stated that it could be quickly remodeled

into a military ship for swift patrolling or other duties in event of a national emergency.

A new type of girder construction, possessing greater than that of conventional and giving added strength against possible storms, level storms, and high stresses, has been worked out in connection with the planning of the training ship. Internal corridors will make all parts of the craft accessible during flight. A fabric outer cover, coated with an aluminum preparation or paint, will be fireproof, weather-proof, and resistant to such local stresses as would be caused by lightning and minor accidents.

No Substitute for Actual Experience

The designers of the proposed training ship point out that, in the operation of the dirigible, there is no substitute for actual experience any more than there is in the operating of an ocean steamship or other large craft. Students of airship operation must have of course, a complete theoretical knowledge of the problems of balance, buoyancy, wind power, fuel, meteorology, heading technique and so forth, but this must be backed by actual experience before the training can be considered complete.

Such training is a progressive process. It begins with the classroom, on the ground, where the fundamentals of flying are taught. The student next gets his first air experience in a free balloon. Following this comes the rigid ship

with possible experience with gas-filled craft driven by a motor and guided by rudders. Finally, the training ship will provide the final step in the thorough training necessary for the safe and efficient operation of a great air craft, such as the Los Angeles or the proposed superdirigibles. The training dirigible is intended to provide facilities for training work in American waters to that period in Germany since the World War.

When Count Zeppelin conceived the idea of establishing a training airship service between Germany and America, even the Atlantic—a plan which was interrupted by the World War—he realized the necessity of highly-trained crews in the operation of the ships.

Theoretical Flights Conducted

Recently, Dr. Hugo Eckener, head of Deag, the commercial airship subsidiary of the Zeppelin Corporation, conducted a school in theoretical flying, supplemented by actual experience. This was in 1912. The procedure was somewhat as follows:

Dr. Eckener assumes a student commander.

"He will take the ship 2-17 from Friedrichshafen to New York, starting on March 4, 1913," he orders.

The student commander immediately consults his student crew and begins a detailed study of weather conditions existing over the North Atlantic during March 4, 5 and 6, 1913. Count Zeppelin, in his elaborate preparations for sea-borne flying, had not a group of men to work out the weather data along the proposed route over a period of twenty-four years. Logs of about 1,000 ships and records of weather between in America and Europe provided the information sought. So when the student commander and his crew assembled in a closed class room for the theoretical part, they knew pretty well what weather would have been encountered in a flight starting March 4, 1913.

The future Zeppelin operators remained in their imaginary ship-positions during the entire "voyage", standing regular

watch and performing other duties which would have been encountered on such trips. Their work was sent in to them.

Over 1,800 theoretical flights were made in this manner from Friedrichshafen to New York and return before war came. Graduate sailing captains as well as students took such training, in preparation for what was expected to come.

This illustrates the manner in which commanders of airships of the future will be educated in the details of proper dirigible navigation. Although no immediate provision for the building of a training airship has been made, the designers are confident that such craft will come into general use within a comparatively few years.

New Air Mail Stop To Be Lighted

ADDITIONAL LIGHTING will be provided by the Department of Commerce for the new air mail stop at Madison, capital and seat of the University of Wisconsin, at the Chicago-St. Paul-Minneapolis survey. The new lighting will extend from Whitefish down to Madison and thence to Portage where it will join the original route. This means about 87 mi. of additional lighting. The City of Madison has obtained options on a field about five miles out of the city and is taking steps to purchase 300 acres for the landing field. A concrete state highway is being laid along the eastern boundary of the proposed airport.

Location of Fields Difficult

CONSIDERABLE DIFFICULTY has been experienced in the location of landing fields on the Los Angeles-Santa survey because of its mountainous character and abundant timber land, states a report from the Aeronautics Branch of the Department of Commerce. The actual survey of the airway is now nearing completion and the general course of the route tentatively determined.



A detail of the structure on the "flying schoolhouse" designed by the engineers of the Goodyear-Zeppelin Corp. of Akron, O.

The Arens Control

A Control Mechanism Designed to Replace Bell Cranks
And Yet be Light, Positive and Reliable

THREE HRS. always has a long felt need among aircraft designers for a control mechanism that would replace the well known bell crank and yet be light, positive and reliable. Some time ago Charles Arens of Chicago, Ill., developed a very simple mechanism that is being rapidly adopted by many of the leading aircraft manufacturers. The Arens patented control is in use on the Boeing mail plane, Waco-Douglas, Laird biplane, Tuckey monoplane, Krynine monoplane, Curtiss "Condor", Inland "Step-wing" and many others. The action of the control varies but it is equally effective whether applied to engine controls, ailerons, brakes, stabilizer adjustment or hook releases. The mechanism which channels bell cranks or levered gears for transmitting controlling forces around aircrews requires practically no maintenance and permits the use of a solid steel wire.

In external appearance this control consists of a brass sleeve of any desired length and bent in any desired shape, from each end of which projects a long-fitting tube, threaded

around a series of slider holes "C". Between the ends of the tube and within the casing, so that it surrounds cable "D" and is inserted a spiral steel spring "E" which is closely wedged between coverings.

When a tensile force is applied to one of the tubes "B" the force is transmitted through cable "D" to the other tube and when a compressive force is applied it is transmitted

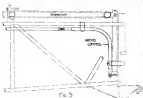


Fig. 3

through the spiral spring "E". This spring being already under complete compression will not be further compressed under the load. The rigid character of casing "A" enables these operations to be easily performed with the least effort under the strains produced. The angle of transmission may be any desired angle though it is usually about 90 deg. There is no lateral movement of any part so that any movement through the wire will be made tight fitting. Generally the control is fitted around the fire wall rather than through it.

Arens controls are manufactured in two sizes, the 1/4 in. and the 1/2 in., each denoting the diameter of the end tube "B". The 1/4 in. size is generally used for engine controls such as throttle and mixture or brakes while the 1/2 in. size is used for ailerons or adjustable stabilizers.

The entire mechanism is assembled with great care to provide for lubrication, the 1/2 in. controls are equal to all aircraft connections whereas the 1/4 in. size simply has a small hole to receive the oil. However, lubrication is entirely if even needed. Using oil of standard viscosity enables the mechanism to work equally well in all seasons of the year.

The connection leading to the Arens controls is out of the conventional steel tube rod with a threaded fitting at the end and which attaches to the control. The control is held to the rod by shock nuts.

Several methods of connecting the control are in use and the most common probably being a flanged "C" type flange

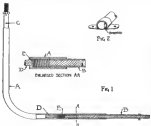


Fig. 1

at the end to receive the control rod leading from the cockpit. The length of the brass sleeve or the number of bends in it make no appreciable difference in the operation of the control. There is no lost motion. The letter "A" in Fig. 1 denotes the brass sleeve or casing, the letters "B" indicate the tubes which freely slide in casing "A". These tubes contain slider holes "C" for the purpose of inserting slider, self screw threads are located at the ends. A flexible 1/4 inch diam. 7 x 16 strand steel cable "D" is inserted inside the tubes and the casing, and secured to the tubes by

any shock is exerted to the casing at two or more points as shown in Fig. 3.

The cable is bent adapted for adjusting a stabilizer control on the Yawing acceptance where the absence of bell cranks is especially noticeable. Fig. 3 shows how the control may be housed in a rod which is later used the stabilizer. The engine controls on the two Laird biplanes that was fitted

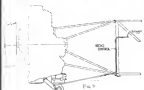


Fig. 4

to the National Air Derby were built by Arens. In the later Laird planes Arens type aileron controls were designed. Fig. 4 shows the aileron and static manifold controls on the Laird biplane.

Several large airplane manufacturers have made extensive studies with its machines both for the purpose and it is not that it is no case has the control failed to give complete control. The strength by actual test is generally superior to the other parts of the control system and its weight is no greater than the relatively complicated bell cranks which it replaces.

Union Trust Co., of Detroit, Mich. Purchases a Waco Ten Airplane

"TRUST" is the name of the new airplane purchased by the recently established aviation department of the Union Trust Co. of Detroit, Mich. The biplane, piloted by Captain Collins, arrived at the Ford Airport recently. The Union Trust Co. is stated to be the first financial institution in the United States to establish a regularly authorized aviation department and to make provision for the service of its members. The company is fortunate in being able to command the services of an acknowledged an accomplished expert in Ray Collins. The establishment of the aviation department is simply a continuation of the interest which the Union Trust Co. has, particularly its president, Frank W. Blair, has in aviation advancement and progress in Detroit.

Victor Collins Great Captain Collins

The new plane is a Waco 10 and a duplicate of the plane Waco recently won the Glen B. Hunt prize on the New York to Boston trip. Captain Collins was the pilot of the Waco 10 biplane which was successful in that event. It is a two-seater, open cockpit plane and is equipped with an OX-5 engine.

When Captain Collins arrived at the Ford Airport, he was met by a reception committee, which was headed by President Blair and a large group of other officials of the

Union Trust Company of Detroit. Among his aviation friends who were on hand were Capt. "Eddie" Rickenbacker, "Hitch" Brock, W. B. Mayo, Edward Selous and William B. Stout, all well-known names in Detroit aviation development.

When questioned relative to the utilization of the airplane for practical purposes in the banking business, President Blair explained that the officials of the Union Trust Company have found so many opportunities to take advantage of the ownership of Mr. Blair in the "Waco Birds" flying group that he found the calls on the two planes owned by the "Waco Birds" organization so frequent as to suggest the advisability of a new plane for the Union Trust officials themselves.

Jupiter Engine Successfully Completes 100 Hour Test Run

A REPORT received from the British Aeroplane Co., Filton House, Bristol, England, states that an officially observed non-stop run of 100 hr. was recently completed with a Jupiter engine constructed under license in Italy by the firm of Bristol Motors and Co.

Before the engine was placed upon the test bed for the 100 hr. run it had completed the ordinary test run in Italy, namely, five continuous hours of which the first hour was run at 420 hp. at 1700 r.p.m. and the remaining four hours at 380 hp. at 1650 r.p.m. The engine was then dismantled and inspected and after reassembling carried out an acceptance test of half an hour at 420 hp. at 1700 r.p.m.

The 100 hr. test was commenced on July 29 at 7:30 A.M. During the first hour the engine was run at 420 hp. at 1700 r.p.m. and at 5:05 A.M. the throttle was reduced and the engine developed 375 hp. at 1650 r.p.m., which is an average of 380 hp. per hour. For the remaining 99 hr. the throttle was not touched again and the number of revolutions per minute remained constant throughout the period.

The temperature of the oil was maintained at 14-15 deg. at the inlet and 80-85 deg. at the outlet, while the consumption was varied throughout the period, the gasoline consumption being 1.5 to 2.5 lb. per hp. and oil 0.5 lb. per hp. It was to be expected the oil consumption during the early periods of running was higher than at the end of the test. While during the first hour at 5:05 power the consumption was about 0.485 lb. per hp. per hr. and during the last hour 0.43 lb. per hp. per hr.

At the whole period of 100 hr. the running was entirely normal and everything worked perfectly. The engine was then dismantled for inspection as to the condition of wear of the various parts, and everything was found to be in perfect condition.

Varnish Firm Studying Industry

THE BASS-HUNTER Paint Co., of San Francisco, Calif., the oldest paint and varnish manufacturing firm in the Far West, is studying the aircraft industry carefully in order to better serve the manufacturers of aircraft in its part of the country. The astronomical activity in the west coast is rapidly expanding and one of the most active aircraft manufacturers are in that section.

The Boeing Aeroplane Co. of Seattle has used Bass-Hunter varnishes for a number of years. In the building of the fleet of mail planes which are now being used on the Chicago-San Francisco route, Bass-Hunter varnishes were used. Another major producer and user of the varnish is the E. F. McManis Corp., builder of the Bess Brougham.



Side profile view of the Mohawk "Pinto".

The Mohawk "Pinto"

A Full Cantilever Low Wing Monoplane Powered
With a Detroit Air-Cat 60 Hp. Engine

EASILY THREE years the Mohawk Aero Corp., of Minneapolis, Minn., started construction on a low wing two place monoplane that was recently completed. Following a considerable number of test flights the company was convinced under the name of Mohawk Aircraft Corp., and production has been started on this plane, the Mohawk "Pinto". It is a full cantilever low wing monoplane powered with a Detroit Air-Cat 60 hp. engine. The two-place fuselage, with the seats slightly staggered, is built of welded steel tubing, while the wings are of wood, with the entire structure covered with fabric.

High Speed of 110 M.P.H.

The plane has very clean lines, being free from all external bracing, giving good visibility from either cockpit. According to the figures supplied by the manufacturer the Pinto has a remarkable speed range even with full load, making possible slow landings and short take-offs. It has a top speed of 110 m.p.h., with a landing speed of 30 m.p.h. It is often stated that the low wing monoplane causes a resistance effect due to the proximity of the wing to the ground. It has been stated that the plane will take off with a run of 150 ft. and with full load climb at 800 f.p.m.

The wings taper both in chord and plan, and have a delta-like dihedral to provide stability with the lifting surface set at low. Both front and rear spars are of box section with square struts. The ribs are of two ply mahogany with a spruce bulkhead every 14 in. The spars are not parallel, curving closer together toward the wing tip with ribs spaced approximately every 12 in. Ribs are built up with spruce capstrips and three three ply mahogany webs. A spruce stiffener is used to reinforce the web for the compression ribs, drag braces and struts being taken up by double wire bracing. The leading edge is reinforced on top and bottom with three ply mahogany is free of the fore-

ward spar. The ailerons are controlled by a hinge tie through the wing. They are of the Frise type having a slight lip or a lower leading edge which gives a balancing action. It is claimed that these ailerons are very effective even at stalling speeds. By removing four pins one at the tip and the bottom of each spar, the wings can be quickly taken off to store the plane in an ordinary garage. The ailerons are not automatically detached when the wing is lowered, as was done, when attached to the fuselage. The wings have been tested by distributing a load of 2,000 lb. over each wing.

The fuselage is of welded steel construction with no bracing. On the nose, mounted on a welded steel strut is the 60 hp. Air-Cat engine in front of the main fuel tank which feeds gasoline to the engine by gravity. The engine is well cooled being provided with a sparger fitting into the stream line shape of the fuselage. Behind the engine compartment and above the wing is a cockpit with two seats, the pilot seat being slightly forward and to the left of that for the passenger. It is claimed that this arrangement has all the advantages of seats in tandem with combined economy of the side by side arrangement. A large windshield is

set ahead the cockpit making it practically free from the draft of the airstream. A single control system has been installed using the conventional stick and rudder pedal control system with all the controls being entirely within the fuselage, leaving the cockpit free. Just behind the pilot's seat and inside the passenger is a compartment for tools or any other equipment, while baggage may be stored in a separate compartment.

The undercarriage is of a split axle type with a tripod strut, the compression member being connected vertically from the axle to the forward wing spar. A shock absorber



Side view of the Mohawk "Pinto".

pressure and also shock absorber is used which absorbs its shock with a minimum of rebound. The 20 in. wheels are placed far apart giving the plane very good stability on the ground. The tail wheel is of a leaf spring type.

The manufacturer's specifications are as follows:
Wing span 30 ft. 8 in.
Length overall 20 ft. 2 in.
Height overall 6 ft. 3 in.
Chord of wing at root 8 ft. 6 in.
Chord of wing at tip 5 ft. 3 in.
Wing surface 128 sq. ft.
Wing section U.S.A. 35 modified
Empty weight 750 lb.
Maximum load 500 lb.
Top speed 110 m.p.h.
Climb rate 800 f.p.m.
Landing speed 30 m.p.h.
Stall speed 20 m.p.h.
Cruising range 4 hr.

The Mohawk Aircraft Corp. was organized with Leon A. Nelson, president, and Sumner E. Whitely, treasurer. The Pinto was designed by Wallace C. Cavanaugh and built tested by George A. MacDonnell.

Install 100 New Airway Beacons

OVER HUNDRED additional new airway beacons have been installed by the Department of Commerce at Washington along the regular transcontinental airway between Chicago and St. Paul, and also along the New York and Atlantic coast. This group follows a similar installation of 100 such new beacons previously for some two airways. They have been placed at intervals of ten miles along the route.

These beacons, furnished by the General Electric Co., are the latest modern type, which has now become the standard for all airways maintained by the Department of Commerce. They have a beam and power of 2,000,000 which will with a 100-watt, 115-volt incandescent lamp. The beacons are equipped with an automatic lamp changer, a device which opens the shutter of one lamp automatically puts a second lamp in place. A flashing mechanism which is used to produce the characteristic flashing signals sent out by the beacons lights on the airways is also part of the equipment.

Elgin National Watch Co., is Now Producing New Instrument Board

THE ELGIN National Watch Co. of Chicago, Ill., is now producing an airplane instrument board, known as Type TA, combining an Elgin Chronometric Tachometer, Army Type C altimeter, oil pressure gauge, oil temperature gauge, and an Elgin 30 hour clock. It also includes an ammeter for air-cooled engines; should the board be used in connection with a water-cooled power plant a water temperature gauge replaces the ammeter. The type board is directly lighted with a low maintenance Mazda lamp. The purpose of the board, looking in to make the board visible at all times. When viewed at an angle at night on a brightly lighted field, or just at dusk, the luminous dials are self-illuminating. At such time auxiliary direct lighting is valuable. Covered boards of the above type have been ordered by the U. S. Army Air Corps Co. of Chicago for some new planes that it is building. A similar board has been installed for experimental purposes on a Ryan Storchling by the D. F. Mahoney Aircraft Corporation.

The Elgin National Watch Co. manufactures two other types of boards. These are both indirectly lighted. One contains a tachometer and two other gauges and the other a tachometer and four other gauges. One of these boards is being used by G. S. Ireland Aircraft Co. of Garden City, Long Island, on its new amphibian. The entire line of these boards is chrome-plated in order to assure full and uniform lustrousness. The weight of the entire board with dials and cover is approximately 10 lb. The oil temperature gauge is 3 pounds and 10 ounces. The tank type instrument boards such as those described speed up production at a greater division of labor is possible. The individual instruments can be placed in the web control board and then the board placed in the cockpit with one operation. The only remaining operation necessary is to connect the instruments.

White Boundary Markers Adopted

A THREE-FOOT stick of enamel steel or similar material white-washed has been adopted by the American Division of the Aeronautics Branch in marking boundaries of all intermediate fields on airways for daylight flying according to the Department of Commerce.

With this boundary marking has recently been begun by the Government. All intermediate fields of the Department of Commerce along the lighted airways are outlined by boundary lights on standards. Around the base of each of these standards is the circle of white-washed sticks. Where the airway is now flown only by day the same white circle boundary markers will be used but without the light standard.

New C.A.T. Chief of Operations

COLONIAL AIR Transport, operating the air mail and passenger line between New York and Boston announced recently that Capt. Dudley E. Norwood has been appointed Chief of Operations on this system, succeeding Louis Lefsky II. The appointment was announced.

Captain Norwood is late of the U. S. Army Air Corps, having been actively identified with aviation activities since 1917. He has had over 2500 hours in the air as a pilot and is widely known in aviation circles. While an officer of the U. S. Army Air Corps Captain Norwood held various positions of administrative importance, including Executive Officer at Kelly Field, Tex.



Front view of the Mohawk "Pinto".

The Douglas T2D-1

All Duralumin Three Purpose Convertible Navy Plane
Powered With Two Wright "Cyclone" Engines

A SHORT time ago the Douglas Co. of Santa Monica, Calif., built three experimental all metal, shipboard, convertible airplanes for the Navy. The model XT2D-1, or T2D-1 as it was recently re-designated, is an all duralumin three plane biplane with folding wings. This model is known as a three purpose plane and may be used for bombing, torpedo and scouting service. The first two experimental models were powered with two Wright P2 435 hp. engines. Recently the Navy Department placed an order for nine additional planes of this type with slight modifications to re-

make them suitable for inspection and repair at the rear plant. Steel three-blade propellers are used. An oil tank is provided in each engine nacelle. All fuel tanks are installed within the fuselage and are made of aluminum.

Provision has been made for the installation of both steel and float type landing gear. The wheel type landing gear consists of two wheels equipped to take 36 in. by 6 in. tires and tubes.

The float type landing gear consists of two solid float and necessary struts and wires. The floats are constructed of aluminum alloy and are so designed as to be interchangeable right and left.

Pilot's Cockpit Roomy and Comfortable

One set of engine controls is provided in the pilot's cockpit, together with all necessary flying and power plant instruments. The pilot's cockpit is roomy and comfortable in spite of the large number of controls necessary for the operation of an airplane of this type. A bomber and power compartment is provided in the bow of the fuselage visible to the pilot from the cockpit. A radio compartment and a rear gunner's cockpit are provided in the after portion of the fuselage.

Provision is made for carrying all necessary armaments ap-



Side view of the Douglas T2D-1 fitted as a bomber

ports the operation of these airplanes from airplane carriers. The later models are to be powered with two Wright B-2700 Cyclone six model radial engines developing 525 hp.

The structure is designed to permit outlanding either as an airplane or a landplane. Provision is also made for deck landing on aircraft carriers and it is believed that this is the first large twin engine plane ever used for deck landing.

The airplane structure consists of metal wings and all metal fuselage. The metal construction is of duralumin. The wings are fabric-covered and are designed to fold, hinging about a rigid master section. Jolly cranes are used to support the folding portion of the wing in its position. Ailerons are provided on both upper and lower wings. Interference struts are of aluminum alloy construction taking and are readily removable for storage. All external brass wires are streamlined form.

The tail units are of metal construction and covered with fabric.

The fuselage is constructed of duralumin tubing, with struts of the same material and of high tensile steel. The engine nacelles are constructed of aluminum alloy and are carefully streamlined and faired into the upper surface of the lower wing. The nacelles are metal covered and are



Front quarter view of the Douglas T2D-1 fitted for land service

ment, including flexible gun, bombs, and a torpedo when it is airplane or a landplane.

The radio compartment is equipped with a long range sending radio set.

Particular attention has been given to lowering the pilot to facilitate landing aboard an aircraft carrier. Special landings have been made with this type airplane aboard ship plane carriers, although it is the largest airplane landed in the harbor.

Where
rules-of-thumb
and guesses are
out of place

An automotive engineer can safely proceed by the method of trial-and-error, revision, improvement and repeated trial. The element of danger, either to himself or his customer, is insignificant.

In the air there should no longer be experiments. Before a plane is delivered, every question ought to have been answered with finality.

That is the governing principle under which The Glenn L. Martin organization is engaged in the most thorough program of research ever attempted in aeronautics. Every factor is being re-studied, re-scrutinized, re-confirmed or revised.

Searching studies into corrosion—developments in both design and construction aimed at the complete elimination of eccentricity of stress—extended search for even slight improvements in material—these are only three out of many phases of the absorbing and far-reaching work under way in the shops, laboratories and draughting rooms of The Glenn L. Martin Company.



THE GLENN L. MARTIN COMPANY

CLEVELAND, OHIO



Side Slips

By ROBERT J. CONGER

According to the news, the group of prominent aviators who flew the Atlantic this last summer, including Colonel Lindbergh, Commander Byrd, Bolles, Brock and Chamberlain, are to meet in Washington for the purpose of conducting the "cross and maintenance" appearing in a report "Analysis of Weather Conditions on Recent Trans-Atlantic Flights" written by two Navy officers. It certainly is not any great surprise to most of us to find that our weather experts cannot discuss the weather accurately even after it has occurred.

Now Ruth Elder is quoted as having said to the crowd which was seeing her off, on her trip back to the States,—"There is only one thing in the world that interests me now—flying the Atlantic." Apparently the aviatorial "we" has become as much of an initiative as the editorial "we".

In a news article in the Sunday edition of one of the New York papers we find,—"one of the big three-motor planes hit a down current of air, which dropped them probably 500 ft. in about one second." As it requires a speed of about 500 m.p.h. to traverse 500 ft. in one second we would say that this was quite a remarkable down current of air.

Speaking of bumps, records us of a story that is told by May Hamilton Maxwell about one of his trips with the irrepressible Clifford Whitten in a Curtiss Six-Gull. "Cliff's" flying experience has extended over about 20 years and

without anything ever happen, aeronautically speaking, without surprising or bothering him a bit. The story demonstrates that very well and we think it worth repeating, at the risk of supplying an incident that may be well known to many. One very breezy and windy day, Maxwell and Whitten had journeyed somewhere to get small photographs and were returning home over the Hudson River, after obtaining the photographs. The photographs plates were saved in corners of the cockpit, being in small heavy boxes. All was well until they were passing over a section of the river between high cliffs, when they were struck by a terrific bump and the machine was knocked down hard. The plane fell a foot and suddenly that two packages of plates, one on each side of the pilot, came up level with the top of the left hand. Then the wind caught them and they fell back along the back panel into the propeller. The propeller and the fan box of plates shooting out at right angles, knocking on an outboard inter-plane strut which happened to be in the way. The other box got under the propeller and was driven down through the hull, tearing a big hole in the bottom. "Cliff" found that by using all of the aileron control available, he could just about keep the ship level, so he started for a down current. They managed to cross down the 1200 ft. in a steady normal flying attitude and landed without landing once. The boat started sliding and sinking right away, however, and Maxwell, who had been wondering if they would ever get to the river safely, was now wondering how they'd ever get ashore. In the excitement of trying to get up on the way before the boat swamped, Major Maxwell slipped and fell overboard. He had just come to the surface when Cliff hauled him in by the collar, and showed him the watch in his pocket which had just pulled out of his pocket, saying, "According to my time, the flight was about fifty-five minutes."

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PERFORMANCE

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Cruising Speed	100 "
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POWER PLANT

Wright Whirlwind	17
Horsepower	300 at 1600 R.P.M.
Fuel Capacity	75 gals.
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AIRPORTS AND AIRWAYS

Boise, Idaho

By Robert Blackmore

Mrs. Maude May of Reno, France, writer and lecturer on women's fashions, paid Boise an unexpected visit when the special plane she had hired in Salt Lake to transport her to Reno, Wash., was forced down at the Boise Municipal Airport.

The French aviator landed in Detroit and then discovered that it is only a matter of a few days to the Olympic Hotel, Seattle, Wash., three short days distance, on land, she would have to journey by airplane, and she had never been in one before!

Leaving Detroit late in the evening she used four planes to reach Salt Lake and flew all night in order to do that. And then was informed, to her great dismay, of course, that the air service did not operate planes between Salt Lake and Reno, France, on Sundays.

Nothing daunted she hired a fifth airplane and her pilot headed for Reno, Wash., where she could have caught a train in Seattle. However, heavy winds in this mountainous region forced her plane to land at the Boise field.

"The city of Moscow, situated on Idaho's proposed airway No. 3, will take the lead in airway development in that part of our state," said Cyril C. Thompson, airways' president, who recently received notification of the founding of Aero Club of Moscow.

The members of the club, who have affiliated with the Idaho Airways Association, are Mel Bailey, Arthur Parks, H. E. Radcliff, Alfred E. Hagen, L. F. Parsons, E. S. Brinkley, Fred, C. A. Hagen, C. H. Winger, George N. Lemley, H. Hedges, L. R. Scott, John Gray and H. E. Roth.

This group, with the cooperation of the Moscow Chamber of Commerce, will take steps to establish a fast direct airport and plan such markings on roads and field as will aid navigation between Boise and Rangoon on the Canadian border via Moscow.

As the University of Idaho, which is located at Moscow, is contemplating adding to its curriculum a course in aeronautics and allied subjects, Mr. Thompson is now seeking federal donations of obsolete airplanes and other equipment for experimental work in the U. S. Engineering Department.

Moscow is now interested in airplane service to Boise and other western Idaho points, and Mr. Thompson, who a short time ago, discussed Idaho airways before a meeting of the Moscow Rotary Club. The idea of flying from Moscow to Boise is less than four hours' flight to Moscow business men when, as pointed out, now journey by train out of northern Idaho into the state of Washington, then into Oregon and then back into Idaho in order to reach their own state's capital.

Mr. Thompson also reports that Mel Bailey, former American Legion commander of the Moscow post, is planning to buy a commercial plane and put it in service of his fellow aviators.

Idaho's governor, H. C. Radcliff, flew to his home town, Parma, Idaho, west of Reno a few miles in order to speak and attend the community day celebration and fall festival.

Virgil Adair, formerly of Los Angeles, now a local commercial pilot was the governor's official pilot.

Oklahoma City, Okla.

By Robert F. Fox

Work on the new hangar of the Oklahoma Aero Club is about completed and the hangar should be ready for use. The building is constructed of steel structure, and is well ventilated by many windows, allowing light to pass into the room where the plane, a Stinson Defender, is to be housed. The plane is here and has been in use for several months, both for pleasure of the club members and for commercial work. The club has built its hangar on the east end of the large municipal field. The N. A. T. hangar is on the west side.

The American Legion Air Team has been postponed. The team, when it starts, will have at least a dozen planes, as well as, many of them for scout purposes. The whole idea of the team, a good one backed by Frank Douglas, its director, is to get new members for the Legion. It is going to visit about every town of any size wherever it is in the state and will be a work. The reason for the present delay is that the hangar could not secure enough planes to make any definite impression at present. The trip has been postponed a month or perhaps two.

The Oklahoma City Aero Club is well under way and now has a large membership list, so large, in fact, that (Word) Title has started instructions work for the members. This is one of the features of owning membership in the club, a fact that is going to enable many men and women of the town to learn how to fly. At a recent meeting of the club, J. C. Hays was elected vice president, to succeed George S. Begg who had resigned. W. E. Dossell was elected secretary and treasurer. Preliminary instruction was begun recently, however, when the club members went to Tulsa during school. They are to receive instruction in flighting during the winter.

A southeast convention is being planned for Oklahoma City soon under H. C. Martin's direction and that of the aviation committee of the Chamber of Commerce. The convention hopes to have all the city mayors as guests for the purpose of increasing air transportation facilities in various Oklahoma towns that now have none. The convention is to be held soon.

Try Baker, former Oklahoma City state man, who has made many aerial faith flying stunts in and near Oklahoma City, has opened a school at Woodward.

The airplane assembly plant of Bob Turbitt and Virgil Brown is being completed in the new hangar. They are to have the local agency for the Stinson-Detrolite plane as well as the state agency. They have their plane here which is to serve, not only as a demonstrator, but also for passenger-carrying and commercial work. In addition to the Stinson-Detrolite agency, Turbitt has the agency for the Eagle truck. He intends to keep three or six of these planes here.

The Chamber of Commerce has issued the following committee to arrange plans for the Southwest Aviation Convention: A. E. Warner, chairman; J. B. Olson, Chief T. Johnson, Carl Bailey and Thomas B. McHenry.

T. C. First, airport clerk at the local meeting station has announced that the aviation wings of the U. S. Army are now open for applications after having been closed several months here. Only qualified high school graduates and experienced mechanics are being accepted.

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Boston, Mass.

By Daniel Kuchford

American business is becoming competitive in the air. A few days ago consisted of the opening of a new office for the selling of aerial services, instruments, made by the Newcomb Aircraft Company, of John Hedges, at present with Air Service of New York, it is to be changed. Until this time Air Service has been the only one in the city, after the short time of the late Airport Corporation of their book, records as well as other to those longer at the Boston Airport over a year. Colonel Air Transport, Inc., has been open in the of Commerce building where Sumner Merrill, travel handles has an office work.

A shift is believed here up also in personnel, according to President John D. Hedges of Air Service. He has moved into new quarters through the Boston Airport Corporation as Fairchild partner and map agents, in taking the control directly in its own name and will continue to develop business throughout New England. His company has sold over thirty thousand dollars worth of plane work over his branch and has just closed contracts for a number of new and lower serial maps in Massachusetts. Pilot Bill Hill arrived in Boston from the Fairchild plant in Pennsylvania, both the new mapping contractor.

Increased business at the airport has resulted in the addition of a new building to the old airport. Captain Robert Nagle, one of the leading National Guard officers of the state and in charge of the 10th Aero Squadron, is now in training and doing cross-country flying and getting ready for the R.A.C. H. Hawk, who has been flying the new motor for Colonel Air Transport, Inc., has also been led by the West Coast in a fortnight. Ralph Whitford and R. L. O'Brien, and Chief Pilot H. F. Billings have been also here.

An idea of the profits Boston companies sometimes paid was given when two open planes at Boston Airport, each able to take over two passengers at a trip, were reported to have collected \$1800 in one week. The machines didn't work as well as passenger flights. Measured in terms of fuel and log books (this dollar in Boston's gross price for fuel flights today) that would mean 280 flights or an average of 10 flights every day all week. According to say this is not a surprise.

New flying students are increasing about six a week in Boston. The recent lecture on "William W. Johnson of Danvers, James H. Schoonmaker of Cambridge, H. H. Riley of Boston, Robert Hedges of Cambridge, R. M. Berger of Cambridge, E. T. Bradley of Boston, and J. H. Hedges of Boston." The club, composed chiefly of officers and graduates with a speaking from the law school and college course, announced a competition open to students. The prize is an election to the club subject to a vote of the club and a change. The club has thirty-one members and is still in the air. Forty-five students reported for a contest and they gave a couple afterwards a week and half of work ready to do anything from making the plane to running errands and keeping books.

Their example perhaps accounts for the departure of the Harvard Business School into the ranks of aviation. A lecture of commercial air position has been assembled with statistical data from various European. A lecture are scheduled with C. H. Bisschhoff, from the Colonel Air Transport dated to do a talk on the subject of "The Interests of American Air Transport." The first aviation conference on aviation held 12 men and six girls seated in the library of the Boston

November 2, 1927

men are might mostly. Daniel Kuchford presenting the following speakers: Major Ira Langham of Army Flying, Louis Raymond D. Thompson, comes for the Navy, Reginald B. Baldwin, a surveyor and aviator; Everett P. Gordon who told of flying, Edward T. O'Toole, who discussed work and aircraft maintenance, Sumner Merrill who talked with the big transport companies, Walter F. Hill, who told of opportunities in the teaching of flying, Franklin T. Hart, who talked of work in construction and of the operations of private airports, D. Hedges, who spoke on air service sales and business, future in aviation. Each speaker answered questions from the audience. The meeting lasted from eight until eleven in the morning, in order and daylight. The hall was finally closed by the speaker's turning out the lights at 12:30 A.M. Since the conference twelve men have signed in for flying courses and about fifty-two for ground school with others awaiting for the free Army correspondence course and the new night course which the University Extension Department of the Massachusetts education board is to open next month with Lieutenant Ede as instructor.

Harvard is actively preparing a second larger at the airport as well as the state school of aviation. The plan is to have a hand for service one night monthly. Since only eight men got into the present Boston Airport corporation house, the next had to be taken down at the old 1021-1908 building. One talked someone at the airport George Hedges by name, and 100 light school flying, by G. H. T. That date is a week or so before the figure is appearing and given some support in December's date of 1926 week's return on two planes.

The other field had preliminary exercises for its new school for aerial procedures recently. That same week the Boston Municipal Air Board met at the Chamber of Commerce to discuss Capt. Edward N. Hedges, airport commander, as a plan to lease the airport site to the City of Boston.

Into the Airways at Hartford are to set as subagents for the Boston Airport Corporation in the sale of Travel Air airplanes. The latter has taken on the agency for the field planes and expansion from the Air Service of New York, which is to devote the time to sales of air services and get into rather than planes.

Five, in the last week in October as reported by the Bureau, four groups of Boston students. Harvard Flying Club, Boston Airport Corporation, 2000 men; Boston South Corporation, 1905 men; Naval Reserve Air Branch, Squadron 2944 men; National Guard 720 men; and 1710 men. Miscellaneous flying done in private would add about ten hours to this total.

Edison has been reported traffic manager for the Boston Airport Corporation. He has served as airport manager at Washington the past summer and comes and operates in the C-6 Travel Air plane.

Duluth-Superior, Minn.

By Daniel Kuchford

The Duluth-Superior Committee of Expense is sponsoring a new kind of air festival to the surrounding Duluth and Superior, as well as their friends.

Part of the design of an airplane, are to be held by the order of the fifty cents and one dollar apiece, the proceeds of which will be used in improving the Arnoldson Airways Flying Corporation. The goal in such of the two cities will be to see the largest aircraft, will involve a complete flying course as well as a flying course. The racing to each two will be entitled to seven hours of flying.

John Goodall, who is building up a reputation in the early

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parachute jumper in the service, made a drop in attendance during an Erie Sevens football game and had left immediately thereafter for Grand Rapids as pointed by Eddie Middelburg, where he added another fall leap to his list.

Hartford, Conn.

By R. A. Pridemore

Major Gen. Morris B. Fayot left Braintree Field : one of the 43rd Division's PT-3 planes with Captain Fleet, pilot, for a cross-country trip to Albany. General Fayot had a request to a plane after having missed a train and wished to have a breakdown in a motor car.

The New England Aircraft has definitely set a date for the beginning of the erection of its hangar at Brunswick Field. The hangar will be the regulation 60 by 180 ft., constructed of concrete and steel and will face the field on a long way to the National Guard buildings.

Tests are being conducted by the Pratt & Whitney Aircraft Co. with their Boeing mail plane, with a view of improving the performance at high altitudes. Each day three planes can be seen flying at from 14,000 to 16,000 ft. and the rear of the Waup can easily be distinguished from the part of the O'Keefe that is as dependent on the air fields.

The Hays Typewriter Co.-owned Ford-Stout arrived at Brannard Field secretly and loaded another shipment of parts for the distribution throughout the country. Their request for hangar space has been withdrawn as they anticipate building in the Middle West, nearer to their markets.

An important contribution to evidence was made by Dr Lawrence O. Sykes and Dr William B. Smith, respective medical director and assistant medical director of the Connecticut General Life Insurance Co. of this city. They cooperated and presented a paper on "The Role of the Medical Examiner in the Association of Life Insurance Medical Directors," in New York. The paper is the result of an intensive and systematic survey of aviation activity, based on reports received from practically all companies operating planes either as the passenger, mail or taxi service. The results of the survey are being published in the form of Dr. Smith's book, "Aviation Medicine," which is being printed. Dr. Smith was filled out and returned, gave ten of the aircraft in which his authority to collect the facts, was observed by the insurance industry. Dr. Smith is happily entirely equipped to make such a survey, since he is not only assistant medical director of the Connecticut General Life Insurance Co. but also director of the 43rd Air Squadron, Connecticut National Guard, an assistant medical examiner of the Department of Commerce. The paper mentions the tabulated information received from the various companies and in addition outlines a critical survey of the program of aviation with particular emphasis on the medical aspects of the industry.

Of particular interest will be such an item as the following: "Despite the liberalization of their policies by the numerous insurance companies, fifty of the leading insurance companies of the United States and Canada are covering without restrictions, moved by fear of their policy holders to the extent of \$75,000,000." This is of course a truly astounding amount and would prove a revelation to a great number of people who have never considered their own policy very closely. It also says that insurance companies are not producing any substantial profits, although they are not facts. That these facts are now available may be gathered from the production of the enclosed in the report of Dr. Smith.

Insurance in Hartford is probably the most important insurance center in the United States. It is expected that the critical survey will do much to alter the attitude of business of policies covering foreign activity.

UNITED STATES AIR FORCES

Report: Officers Called to Active Duty

In order to carry out the provision of the five year air program which entitles the President to call Air Corps reserve, there is a need to have duty for an extended period. The number of officers required for the service will be increased among the several corps areas in proportion to the number of reserve officers in each area who are qualified to carry out the duty. Each corps area commander will be called upon to recommend reserve officers, available for an extended period of duty, for the specific assignment, up to the limit of 100 in each area. When the reserve area commander is unable to recommend, the chief of air corps, or at his request, another corps area commander will be called upon for additional recommendations.

It is so when it is contemplated to order officers of the Air Corp. reserve for extended active duty to an installation, no corps area, other than that in which they live, as to which they are accredited, the corps area commander, who has just before the installation, will be contacted prior to the issuance of the orders.

To Photograph for Shipping Board

At the request of the United States Shipping Board, the Army Air Corps has been directed to take aerial photographs of the reserve fleets controlled by the board. These aerial photographs will illustrate completeness and report nature to the preservation of the vessels now out of use.

Photographs will be made of the San Francisco Gull to and in Southampton Bay at Roscoe, Calif., Pointman River and on-tongue of passenger ships Agnostos and Mount Union, located in the Pointman River north of Point Pinos near Sequoia's Island, Md., the Calhoun (off and near Jones Point, Hudson River, about 40 mi. north of New York City), and the Staten Island Flats No. 1 and No. 2 located in Staten Island Sound.

Vars Postgraduate Engineering Courses

The Bureau of Navigation has sent out a circular letter on the subject of post-graduate instruction in engineering. Boards to select candidates for this post-graduate instruction will act on or about Dec. 1.

It is understood that qualified pilots up to three will be selected for the post-graduate course in electronics, three three for a training to the six officers to be selected from the general line. Four officers from the line will be selected for post-graduate course in sociology, three qualified naval pilots will be selected for the course in aeronautical engineering and two up skilled naval pilots, who are also qualified radio-telegraphists, will be among the two who are selected for the post-graduate course in communications engineering.

The benefits will exclude recipients of applicants in engineering or science who have had five or more years of service on July 1, 1976, and for earnings those who have five or more years of unremunerated service.

course) requires that officers applying for post-rotation relief, with their applications, signed not to resign during the course and to serve three Naval service after the completion of their post-

of candidates will be announced prior to Feb



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PUBLISHER'S NEWS LETTER

After a very hurried trip to the aeronautical centers of Europe, it will probably be of interest to the readers of AVIATION to receive a few of the impressions gained at first hand by one who is usually regarded as representing the group who read this paper every week. It is obvious that unless one could only a most superficial view could be had of aeronautical progress since last year in England, France, Holland, Germany and Italy, but at the Schneider Cup Race at Venice and at the Fourth International Congress of Aerial Navigation at Rome, aeronautical representatives of forty countries were present and the interchange of opinions was valuable in securing a general impression. So that the cities of northern Europe could be visited quickly between the two above mentioned aeronautical meetings, a flight was made from Venice over the Alps to Vienna and from there via Prague to Berlin. From Berlin to London by way of Amsterdam completed the aerial journey of this year. Some of the interesting aerial developments that were observed will be briefly described in the Publisher's News Letters of the next few issues.

The most important development in aeronautical engineering in Europe is, without doubt, the new Handley Page automatic pilot. This should not be confused with the original Handley Page device used in its construction and characteristics are very much more important. If the opinion of leading aeronautical engineers is given proper weight, the new improvement for airplane pilots will be used on every modern airplane within a few years. Unfortunately, during the period when Mr. Handley Page is negotiating for its use in various countries the details of this new safety appliance may not be given but perhaps some idea of the results accomplished may be had from a description of a flight which the Publisher of AVIATION was privileged to make at Croydon, England, in October before the Daily Mail of London had made public the news of the invention.

Mr. Handley Page was present at the dinner given to the R.A.F. pilot Webster who won the Schneider Cup at Venice. He immediately invited his American friend to visit his works and see "the greatest advance made in airplane design since the Wright Brothers' first." Mr. Handley Page's well known enthusiasm and sense of publicity did not win the judgment of his old friend but only aroused a curiosity that was to be more than satisfied. Within five minutes after arriving at Croydon, the writer was in a race ring cockpit of a Handley Page airplane and was watching the well known test pilot England take off, using the older Handley Page closed wing to

shorten the run. Once in the air, the closed wing was shut and the automatic pilot on both wings at the entering edge of the wings commenced its function. These pilots are automatic in every respect. They open and close without any control from the pilot. An arrow pointer is attached to the experimental type on the type that the pilot now could know the exact amount of opening of the slot at all times. The engine was only about 1500 feet owing to foggy weather but the plane climbed to 1800 feet. The pilot discarded the engine and turned to his passengers and said "Now we are completely stalled!"

Obviously, the nose would gradually drop and thrust down of control the plane would go into a nosedive. But nothing of the kind happened. From 1800 feet to 600 feet the plane gradually descended and to show that it was under perfect control, England locked his rudder several times to demonstrate. If it is cleaned and demonstrated—this device can be used on any type of plane and will give control when the plane is stalled up to 25 degrees the danger of spinning will have greatly reduced and another serious accident along the road of aerial progress. To those who have been in a stalled airplane at 600 feet or under, the thrill of coming out by merely opening the throttle and picking up speed will be realized. But even this accomplishment is not all of the safety feature of the new automatic pilot. As it will lessen the greatest danger of a stall in all airplanes. If a plane were able to turn when stalled during a tailspin another great element of safety would have been achieved.

"Now, Mr. Gardner, we will do a flat turn." If dropping 1200 feet in a stall produced a new sensation, the making of a complete turn of 360° without an inch of bank not only produced a breathless fear but so astonished the marvelling passenger that he was very glad to once more level and resume the ordinary mechanism that made the unbelievable possible. Particularly is it was the brevity of the turn. What had happened was that the slots had given the pilot perfect control while shedding around the turn and while the side blast of wind nearly blew me back off, the plane appeared to remain under perfect control. To go through two of the most dangerous maneuvers that can be tried within a few minute flight was enough for one day. How the slot functions, in theory, its practicability and its other possibilities, will have to be told by Mr. Handley Page when he is willing to do so. But at this time, although the flight was made under the restrictions of confidential relations the above general idea may be published even though it may be critically vague.



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